

DPH Influenza Testing Procedures During the 2013-2014 Flu Season

To identify influenza virus types, subtypes and strains circulating in Connecticut during the influenza season, the Department of Public Health (DPH) offers influenza testing for:

1. Hospitalized patients with ILI (request influenza testing)
2. Patients (especially children less than 18 years of age) with ILI and recent exposure to swine at farms and agricultural fairs (request influenza testing, note possible swine exposure)
3. Patients with pneumonia and/or Acute Respiratory Distress Syndrome (ARDS) developing within 10 days of travel to Southeast Asia or within 14 days of travel to the Arabian Peninsula (request flu testing, note travel history, contact the DPH Epidemiology Program at 860-509-7994 regarding possible Middle East Respiratory Syndrome Coronavirus [MERS-CoV] testing)
4. Selected non-hospitalized patients with ILI associated with outbreaks in long-term care facilities or schools, if approved by the DPH Epidemiology Program at 860-509-7994.

Health care providers may call the DPH Laboratory at 860-920-6662 for questions on preparing specimens for shipping. Testing is provided at no cost for patients in one of the above listed categories. Viral reference collection kits (VR-C) can be ordered from the DPH laboratory at 860-920-6674 or 860-920-6675. All other questions regarding influenza and respiratory virus testing may be directed to the DPH Epidemiology and Emerging Infection Program at 860-509-7994.

Influenza Surveillance, Connecticut, 2012-2013

After the 2009 H1N1 Flu Pandemic (1), influenza activity remained relatively low until December 2012 when rapidly increasing flu activity suggested an influenza season with the potential for a

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In this issue...

DPH Influenza Testing Procedures During the 2013-2014 Flu Season	17
Influenza Surveillance, Connecticut, 2012-2013	17

major impact on Connecticut residents. Influenza activity has traditionally been monitored during the eight month period from October through May; however, influenza may circulate in Connecticut throughout the year, usually at low levels. The Connecticut Department of Public Health (DPH) has extended its flu surveillance into a year-round effort. This report summarizes the 2012-13 influenza surveillance activities during the period starting on August 26, 2012 and ending on August 24, 2013.

During the 2012-13 season, the DPH used six complementary systems to identify circulating influenza types and subtypes including any novel strains, describe the morbidity and severity of influenza-associated illnesses, and provide timely public health advisories for health providers and residents. Summaries were also provided to the Centers for Disease Control and Prevention (CDC) to support national surveillance efforts.

Influenza surveillance systems included laboratory, hospital, and provider-based reporting (1, 2). Laboratories were required to report all positive influenza test results. The DPH also requested submission of specimens from all hospitalized patients suspected to have influenza to the Public Health Laboratory for subtyping. Hospitals reported influenza-associated hospitalizations and participated in two syndromic surveillance systems. The Hospital Emergency Department Syndromic Surveillance (HEDSS) System provided daily reports on the proportion of ED patient visits that were attributed to a "fever/flu" syndrome, and the Hospital Admissions Syndromic Surveillance (HASS) System provided daily reports of unscheduled pneumonia admissions. The Influenza-like Illness Network (ILINet) included 29 volunteer outpatient health care providers that

reported the weekly proportion of patients exhibiting ILI (a cough or sore throat in the absence of a known cause, and the presence of a fever $>100^{\circ}\text{F}$, 37.8°C). Health care providers reported influenza-associated deaths among patients of any age. Data from these systems were compared with data collected during the 2011-12, 2010-11, and 2007-08 seasons; the 2007-08 season was the most recent with A (H3N2) as the predominate circulating subtype.

Results of Surveillance

From August 26, 2012 – August 24, 2013, the DPH received a total of 11,511 reports of positive influenza tests. Virus types included, 7,869 (68%) type A, 2,083 (18%) type B, and 1,559 (14%) unknown. Of the influenza A viruses, 1,505 (19%) were subtyped, and included 1,410 (94%) type A (H3N2), and 95 (6%) type A (2009 H1N1). Most of the influenza B viruses were identified during the latter part of the season.

Positive test results were reported from residents of all eight Connecticut counties with the highest proportions from the three most populous counties including: Fairfield (36%), New Haven (24%), Hartford (17%), Windham (6%), New London (6%), Middlesex (5%), Litchfield (3%), and Tolland (3%) counties. By age group, 27% were from patients aged 5-18, 24% aged ≥ 65 years, 21% aged 25-49, 11%

aged 50-64, 8% aged 1-4, 6% aged 19-24, 3% aged <1 year, and $<1\%$ age unknown. The highest rates were among patients <5 years and ≥ 65 years (615 cases and 535 cases per 100,000 population respectively).

In Connecticut, the percentage of patients with ILI remained above 1% (considered baseline) statewide, from December 2012 through April 2013. The peak level of 4.6% was observed during the week ending January 12, 2013 corresponding to week 2 of the Morbidity and Mortality Weekly Report 2013 calendar. This peak was higher and earlier than those observed during the 2011-12 and 2010-11 seasons; however, it was lower than the 9% peak observed during the 2007-08 season (Figure 1).

The HEDSS-reported “fever/flu” data generally remained above 5% (considered baseline) statewide from December 2012 through April 2013. The peak level of 12.4% was observed during the week ending January 19, 2013 (week 3) and was higher than those observed during the 2011-12 and 2010-11 seasons. The 2012-13 season peak was also earlier and higher than the 10.7% peak observed during the 2007-08 season (Figure 2, page 19).

The weekly number of HASS-reported pneumonia admissions remained above 400 statewide during most of December 2012 and

Figure 1. Connecticut Influenza-like Illness Surveillance Network (ILINet): Percentage of patients with Influenza-like Illness (ILI) by week, Connecticut, 2012-13 influenza season compared to past seasons

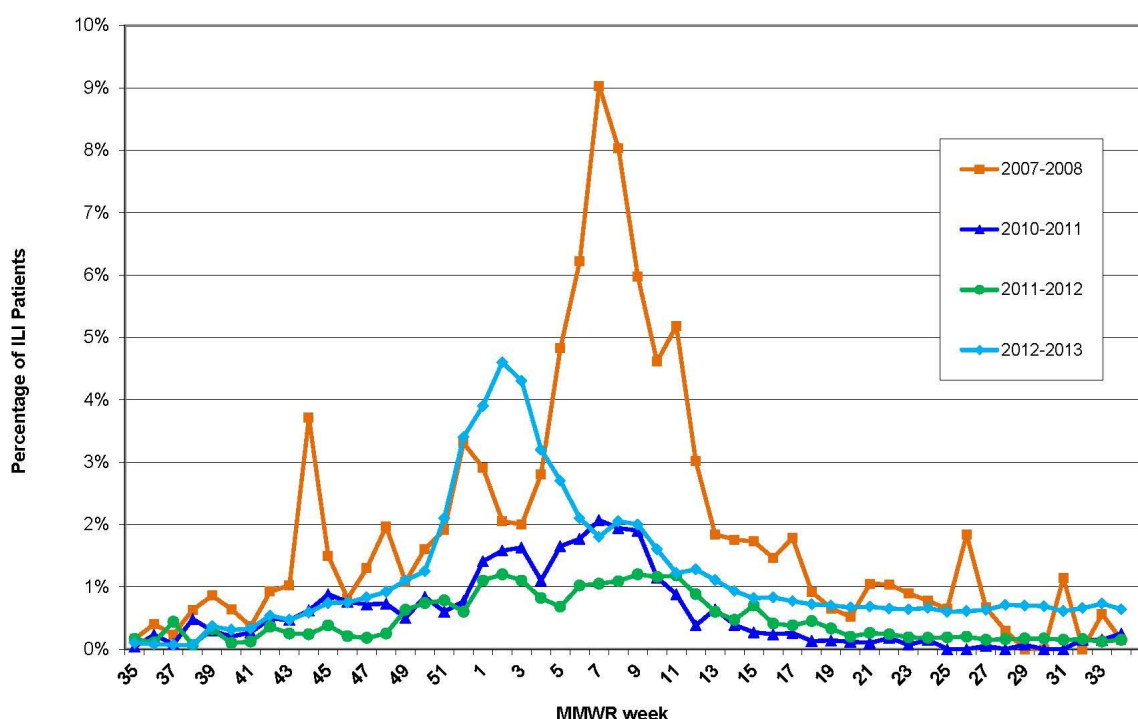
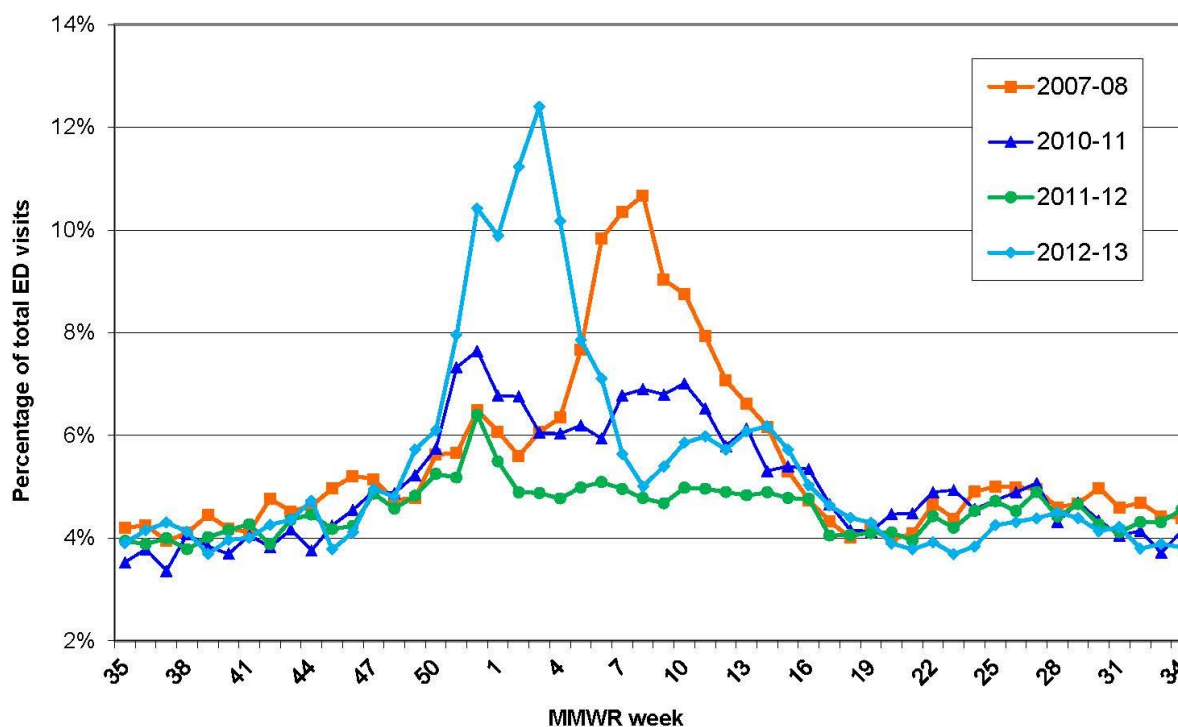


Figure 2. Connecticut Hospital Emergency Department Syndromic Surveillance (HEDSS) System: Percentage of total ED visits for the “fever/flu syndrome” category by week, Connecticut, 2012-13 influenza season compared to past seasons.



January 2013. The peak level of 696 admissions was observed during the week ending January 5, 2013 (week 1). This peak was higher than those observed during the 2011-12, 2010-11, and 2007-08 seasons, which generally did not exceed 500 pneumonia admissions, and was earlier than the 2007-08 peak (Figure 3, page 20).

A total of 2,228 persons hospitalized with influenza-associated illness were reported, and included 563 (25%) type A (H3N2), 12 (0.5%) type A (2009 H1N1), 1,261 (57%) type A (subtype unspecified), 388 (17%) type B, and 4 (0.2%) of unknown type. A total of 57 influenza associated deaths were reported, including 14 (25%) patients with type A (H3N2), 36 (63%) patients with type A unspecified, and 7 (12%) patients with type B infections. The deaths occurred in patients at least 55 years of age with the majority (84%) being aged 65 years or older. Overall, 0.5% of patients with positive influenza tests and 2.6% of hospitalized patients with confirmed influenza infections died.

These surveillance systems indicated two waves of influenza. The first distinct wave peaked in early January and included peak weeks with 1,740 laboratory confirmed influenza cases, 4.6% ILI

outpatient visits, 12.4% fever/flu ED visits, and 696 pneumonia admissions. Laboratory testing confirmed the predominant circulating type during the first wave was influenza A, and the predominate subtype was (H3N2). The smaller, less distinct wave in March was caused by influenza B virus and was less apparent in the data provided by the three syndromic surveillance systems (Figures 1-3).

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Editorial

Connecticut's multi-system approach to influenza surveillance allowed the DPH to determine that the 2012-13 influenza season had one of the highest levels of flu activity observed during the past decade. Connecticut surveillance data also contributed to the CDC's understanding of the impact the 2012-13 influenza season had on our nation's health. The high percentage of laboratory-confirmed influenza cases and the high number of influenza-associated hospitalizations and mortality

observed was characteristic of past seasons with influenza A (H3N2) as the predominate circulating subtype.

Overall, the total number of laboratory confirmed influenza cases reported during the 2012-13 season was comparable to the number of cases reported during the 2009 H1N1 pandemic, however, the influenza-associated hospitalizations (2,228 vs. 976 respectively) and deaths (57 vs. 36 respectively) were greater. Also, 24% of the 2012-13 cases, and 20% of the 2007-08 cases were aged ≥ 65 years, while only 2% of cases during the 2009 H1N1 pandemic were aged ≥ 65 years. Severity of influenza associated illness during 2012-13 more closely resembled the 2007-08 season, also characterized by influenza A (H3N2) as the dominant subtype in circulation.

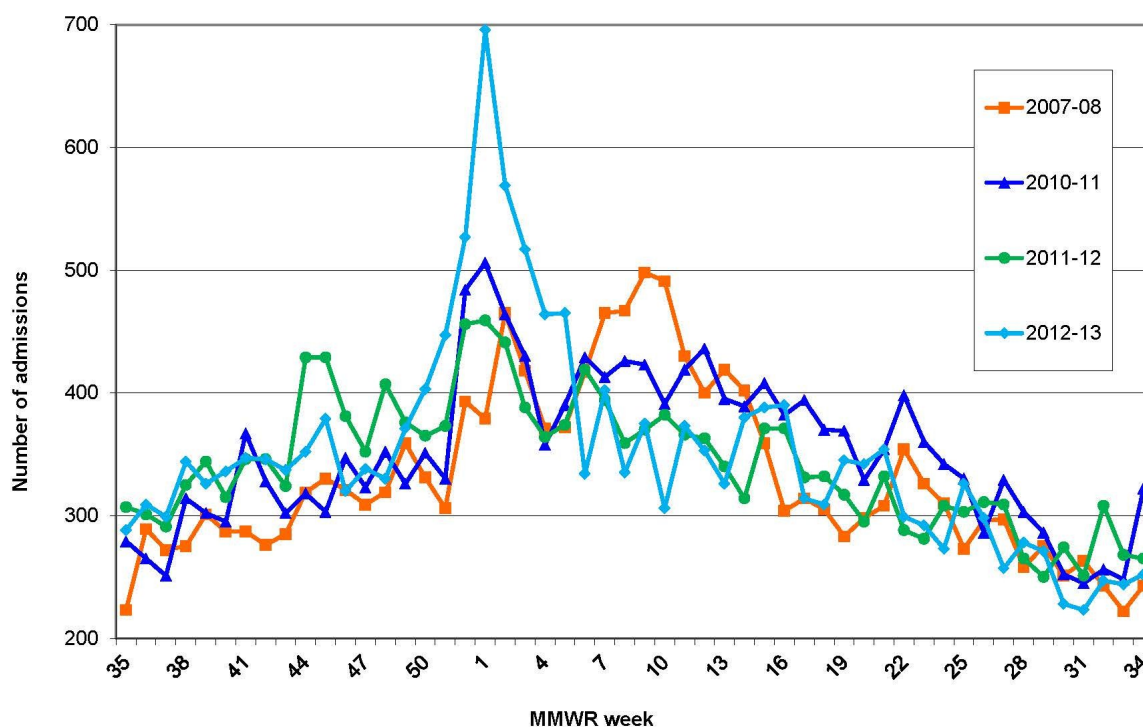
During the last decade, improvements made to these surveillance systems have improved timeliness and efficiency of reporting by reducing the use of

mail and fax reporting to the DPH. They include implementation of electronic reporting of laboratory test results and the HEDSS; web-based reporting is used for reporting of hospitalized and fatal cases, and the HASS. In addition, local health departments can access jurisdiction-specific case reports through the web-based CT EDSS, avoiding duplicate reporting by laboratories and hospitals. Ongoing efforts for completion of these improvements will contribute to agency readiness for the next influenza pandemic and other public health threats.

References

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2. Hadler JL, Siniscalchi A, Dembek Z, Hospital Admissions Syndromic Surveillance -- Connecticut, September 2001-June 2004. MMWR. August 26, 2005; 54(Supplement):169-173. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/su5401a27.htm>

Figure 3. Connecticut Hospital Admissions Syndromic Surveillance (HASS) System: Total statewide pneumonia admissions by week, Connecticut, 2012-13 influenza season compared to past seasons.



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